

Complete Summary

GUIDELINE TITLE

Post-treatment follow-up of prostate cancer.

BIBLIOGRAPHIC SOURCE(S)

Kawashima A, Choyke PL, Bluth EI, Bush WH Jr, Casalino DD, Francis IR, Jafri SZ, Kronthal AJ, Older RA, Papanicolaou N, Ramchandani P, Rosenfield AT, Sandler CM, Segal AJ, Tempany CM, Resnick MI, Expert Panel on Urologic Imaging. Post-treatment follow-up of prostate cancer. [online publication]. Reston (VA): American College of Radiology (ACR); 2005. 9 p. [50 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Amis ES, Bigongiari LR, Bluth EI, Bush WH, Choyke PL, Fritzsche PJ, Holder LE, Newhouse JH, Sandler CM, Segal AJ, Resnick MI, Rutsky EA. Post-treatment follow-up of prostate cancer. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000 Jun;215(Suppl):773-8.

The appropriateness criteria are reviewed annually and updated by the panels as needed, depending on introduction of new and highly significant scientific evidence.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Prostate cancer

GUIDELINE CATEGORY

Evaluation

CLINICAL SPECIALTY

Oncology
Radiology
Urology

INTENDED USERS

Health Plans
Hospitals
Managed Care Organizations
Physicians
Utilization Management

GUIDELINE OBJECTIVE(S)

To evaluate the appropriateness of radiologic procedures for post treatment follow-up of prostate cancer

TARGET POPULATION

Patients treated for prostate cancer

INTERVENTIONS AND PRACTICES CONSIDERED

1. Nuclear medicine (NUC)
 - Bone scan
 - ProstaScint scan
2. Invasive, ultrasound (US)-guided biopsy, transrectal
3. Magnetic resonance imaging (MRI)
4. Computed tomography (CT)
5. Ultrasound
 - Transrectal
 - Transabdominal
6. Fluorodeoxyglucose positron emission tomography (PET)
7. X-ray
 - Bone, metastatic survey
 - Kidney, intravenous urography, intravenous pyelogram (IVP)

MAJOR OUTCOMES CONSIDERED

Utility of radiologic examinations in post-treatment follow-up

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches of recent peer-reviewed medical journals, and the major applicable articles were identified and collected.

NUMBER OF SOURCE DOCUMENTS

The total number of source documents identified as the result of the literature search is not known.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not stated

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

One or two topic leaders within a panel assume the responsibility of developing an evidence table for each clinical condition, based on analysis of the current literature. These tables serve as a basis for developing a narrative specific to each clinical condition.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Since data available from existing scientific studies are usually insufficient for meta-analysis, broad-based consensus techniques are needed for reaching agreement in the formulation of the appropriateness criteria. The American College of Radiology (ACR) Appropriateness Criteria panels use a modified Delphi technique to arrive at consensus. Serial surveys are conducted by distributing questionnaires to consolidate expert opinions within each panel. These questionnaires are distributed to the participants along with the evidence table and narrative as developed by the topic leader(s). Questionnaires are completed by participants in their own professional setting without influence of the other members. Voting is conducted using a scoring system from 1-9, indicating the least to the most appropriate imaging examination or therapeutic procedure. The

survey results are collected, tabulated in anonymous fashion, and redistributed after each round. A maximum of three rounds is conducted and opinions are unified to the highest degree possible. Eighty percent agreement is considered a consensus. This modified Delphi technique enables individual, unbiased expression, is economical, easy to understand, and relatively simple to conduct.

If consensus cannot be reached by the Delphi technique, the panel is convened and group consensus techniques are utilized. The strengths and weaknesses of each test or procedure are discussed and consensus reached whenever possible. If "No consensus" appears in the rating column, reasons for this decision are added to the comment sections.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

ACR Appropriateness Criteria®

Clinical Condition: Post Treatment Follow-up of Prostate Cancer

Variant 1: Status post radical prostatectomy. Rising PSA Level.

Radiologic Exam Procedure	Appropriateness Rating	Comments
NUC, prostate, bone scan	8	More likely to be helpful if PSA > 10. Readily available. Scan to include correlative plain films. If bone scan is positive, no further imaging work-up is necessary.
INV, prostate, US-	6	Should be done under ultrasound

Radiologic Exam Procedure	Appropriateness Rating	Comments
guided biopsy, transrectal		guidance to confirm recurrence. Local recurrent tumor may be visualized on transrectal ultrasound in only 30% to 50% of cases.
MRI, prostate	6	Endorectal coil MRI may be useful for evaluation of local extension or pelvic nodal involvement. Use of Gd injection is promising in detecting local recurrence. MR-guided biopsy is not widely available. If bone scan is inconclusive, MRI would be helpful for further characterization.
CT, prostate	4	May be useful for evaluation of local extension or nodal involvement. Readily available.
US, prostate, transrectal	4	Will not show microscopic occurrences.
NUC, prostate, ProstaScint scan	3	May be more appropriate if decisions regarding local therapy are being considered. Fusion imaging with CT or MRI has been reported.
FDG PET, prostate	3	PET/CT promising, but insufficient data to warrant routine use.
US, prostate, transabdominal	2	
X-ray, bone, metastatic survey	1	
X-ray, kidney, intravenous urography, IVP	1	If bone scan shows obstruction or elevated creatinine.
<p>Appropriateness Criteria Scale</p> <p>1 2 3 4 5 6 7 8 9</p> <p>1 = Least appropriate 9 = Most appropriate</p>		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 2: Status post radiation therapy. Rising PSA level.

Radiologic Exam Procedure	Appropriateness Rating	Comments
NUC, prostate, bone scan	8	Scan to include correlative plain films.
INV, prostate, US-guided biopsy, transrectal	6	
MRI, prostate	6	
CT, prostate	5	
US, prostate, transrectal	3	
NUC, prostate, ProstaScint scan	3	
FDG PET, prostate	3	
US, prostate, transabdominal	1	
X-ray, bone, metastatic survey	1	
X-ray, kidney, intravenous urography, IVP	1	
<p>Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1 = Least appropriate 9 = Most appropriate</p>		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 3: Treatment of metastatic prostate cancer by androgen deprivation therapy. Rising PSA level.

Radiologic Exam Procedure	Appropriateness Rating	Comments
NUC, prostate, bone scan	8	Obtain plain films as needed.
MRI, prostate	2	MRI useful in the evaluation of treatment response. Adjunct MRSI also promising.
CT, prostate	2	Readily available. Useful in detecting

Radiologic Exam Procedure	Appropriateness Rating	Comments
		nodal and visceral disease.
NUC, prostate, ProstaScint scan	2	
FDG PET, prostate	2	
INV, prostate, US-guided biopsy, transrectal	1	
US, prostate, transrectal	1	
US, prostate, transabdominal	1	
X-ray, bone, metastatic survey	1	
X-ray, kidney, intravenous urography, IVP	1	May be indicated if bone scan shows obstruction or elevated creatinine.
<p>Appropriateness Criteria Scale</p> <p>1 2 3 4 5 6 7 8 9</p> <p>1 = Least appropriate 9 = Most appropriate</p>		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

In the evaluation of patients with recurrent or metastatic prostate cancer, it is of importance to define local and/or distant tumor location, size, and extent. Prostate cancer is treated by four standard methods: radical prostatectomy, radiation therapy, cryosurgical ablation, or androgen deprivation therapy (ADT). The treatment choice is based on the stage of the tumor as well as the histology and grade and is influenced to a certain extent by the preference of the treating physician and the patient. After treatment, patients are followed at periodic intervals with measurement of serum PSA levels and digital rectal examination (DRE). However, DRE is frequently unreliable in evaluating local recurrent disease after radical prostatectomy. PSA is produced by the epithelial cells of the prostate gland and is therefore specific for prostatic tissue. A rise in PSA is detected in the serum when the prostate gland has been disrupted as with prostate cancer, benign prostatic hyperplasia (BPH), acute prostatitis, or following prostate biopsy. PSA is now widely used as a tumor marker for prostate cancer, both for detection and for monitoring response to therapy. No imaging study is necessary after treatment for clinically localized prostate cancer unless the PSA is elevated, the DRE is abnormal, or the patients have bone pain. Although PSA alone does not differentiate local from distant disease recurrence, the patterns of PSA rise after local therapy can help to differentiate local from distant failure. Patients with a

late biochemical recurrence (>24 months after local treatment), low PSA velocity (change in PSA over time), and/or prolonged PSA doubling time (>6 months) most likely have recurrent local disease. Conversely, patients with a rapid PSA recurrence (<24 months after local treatment), high PSA velocity, and/or short PSA doubling time (<6 months) are more likely to have distant disease recurrence.

Bone x-rays are not sensitive for detection of metastasis compared with radionuclide bone scans, but they may be helpful in identifying degenerative changes as the cause for a positive bone scan. Chest x-ray is not necessary because prostatic lung metastases are only found in late stage disease after other more common sites are involved by tumor.

Whole-body bone scans are frequently performed for detection of skeletal metastases in patients with rising PSA following treatment. Some investigators have suggested that bone scans be done annually in patients without evidence of metastatic disease and in patients with clinical or biochemical indications of recurrent disease. However, since bone scans are rarely positive without symptoms or without abnormal PSA levels, the routine use of this study post treatment is considered unproductive by some investigators. One study found three patients with bone metastases in a series of 59 patients without suspicious serum PSA levels. A bone scan may be inconclusive since it is a sensitive but not specific examination. Quantitative bone scans are considered more accurate in affirming the vertebrae as normal or abnormal. MRI may be helpful in the diagnosis of bone metastasis when other examinations are conflicting and can be used to determine response to hormonal treatment. A comparison of MRI and bone scans showed 818 abnormal vertebrae detected by MRI versus 499 by bone scan in the same group of patients.

Post Radical Prostatectomy

Following radical prostatectomy, PSA levels are expected to be undetectable to less than 0.15 ng/mL within several weeks of surgery. Waiting 6-8 weeks after treatment is advisable before assessing the serum PSA value since the half-life of serum PSA is relatively long. Since the PSA is specific for the prostate, detectable PSA levels mean that there is residual prostate tissue. If there is a rise in a previously undetectable or stable postoperative PSA level, a prompt search for persistent, recurrent, or metastatic disease should be pursued. The major objective of the diagnostic imaging studies is to assess patients for the presence of distant metastatic disease or local recurrent disease, each requiring different forms of systemic or local therapy.

Radionuclide Bone Scintigraphy

Radionuclide bone scan is traditionally the first examination obtained. If the bone scan is positive for metastatic disease, no further imaging studies are necessary. If the bone scan is negative or inconclusive, further imaging studies are performed, including conventional radiographs, MRI, or CT. However, the level of post-treatment PSA that should prompt a bone scan is uncertain. In a study of patients with biochemical failure following radical prostatectomy, the probability of a positive bone scan was less than 5% with PSA levels between 40-45 ng/mL.

Bone scan is limited until PSA increases above 30-40 ng/mL. Based on a survey conducted by the American Urology Association (AUA) on current practice strategies for follow-up after radical prostatectomy, bone scans are recommended only if the patient had symptoms of bone pain, a rapid rise in PSA (PSA velocity), or a significantly elevated PSA value.

Transrectal Ultrasonography

The use of imaging in the evaluation of local tumor recurrence is controversial. Transrectal ultrasound (TRUS) with guided biopsy of the vesicourethral anastomosis (VUA) has been the standard imaging approach to document local recurrence. A palpable abnormality is not always a good guide to the location of recurrent or progressive tumor because postoperative fibrosis may mimic tumor. Negative results of ultrasound-guided transrectal biopsy of the VUA, regardless of a palpable mass or induration, may be inconclusive because of sampling error. One investigator has questioned the use of biopsy in the face of a rising PSA level since the negative results are unreliable and elevated PSA levels may precede clinical evidence of local recurrence by one or more years. Repeat TRUS with VUA needle biopsy may be necessary in one-third of cases. The yield for detection of local recurrent tumor with TRUS with needle biopsy rises significantly with serum PSA levels. Only about 25% of men with prostatectomy PSA levels of less than 1 ng/mL have histologic confirmation of local recurrence after biopsy of the prostatic fossa.

A staging pelvic lymphadenectomy is sometimes done at the time of a radical retropubic prostatectomy; therefore, follow-up of the lymph nodes usually is not necessary in such cases. However, if the biopsy of the VUA is repeatedly negative in the face of a rising PSA level, then pelvic imaging looking for adenopathy with CT or MRI may be indicated.

Computed Tomography

CT is not effective for detecting recurrent tumor in the surgical bed. A CT scan can recognize only local recurrences that are greater than or equal to 2 g. The mean PSA value associated with a positive CT scan after radical prostatectomy was 27.4 ng/mL.

In the evaluation of nodal disease, CT has replaced lymphography and relies on nodal size to detect nodal metastases. Using 1 cm as a cutoff, studies have reported sensitivity between 27-75% and with a specificity of 66-100%. By decreasing the size cutoff to 0.7 cm and by sampling suspicious nodes by fine-needle aspiration (FNA), one group of investigators was able to attain a sensitivity of 78% and specificity of 100%. However, this decreased size criteria with concomitant use of FNA has not been widely adopted. CT is useful in detecting bone and visceral metastases, although bone scan and MRI are superior in the diagnosis and follow-up of bone metastases.

Magnetic Resonance Imaging

The use of MRI is evolving and has potential to evaluate both local recurrence and distant bony and nodal metastases. MRI utilizing an endorectal coil is used to evaluate local recurrence. MRI was positive in men with cancer recurrence only

with a concomitant rise in PSA level. In the absence of PSA rise, despite suspicious findings on DRE, the MRI was negative. In another study of 16 patients with rising PSA after radical prostatectomy and negative transrectal ultrasound-guided biopsy, dynamic gadolinium-enhanced, endorectal coil MRI demonstrated nodular enhancing lesions in 13 of 16 patients (84%). In 8 of the 13 patients with positive MRI findings, PSA levels decreased after radiation therapy. Concurrent MRI-directed biopsy of suspicious sites is not available.

The accuracy of MRI for staging pelvic lymph nodes by size criteria is similar to that of CT. MRI can be more sensitive and specific in the diagnosis of bone metastases with better spatial and contrast resolution when compared to bone scan. MRI is unable to cover the entire skeleton within a reasonable time at a reasonable cost. Therefore, it is useful when other imaging modality findings are indeterminate. Response of bone metastases to treatment can be more accurately monitored by serial MRI scans.

Post Radiation Therapy

Prostate cancer treated with radiation therapy (RT) is monitored differently, since the prostate and the lymph nodes are left in place. Following radiation therapy, the serum PSA level decreases in the majority of the patients during the first year. Surveillance for tumor recurrence in patients post radiation therapy should include DRE and serial serum PSA levels. The prostate gland becomes atrophic and fibrotic after radiation treatment, making distinction between local recurrent disease and benign irradiated prostatic gland difficult by DRE alone. The American Society of Therapeutic Radiology and Oncology (ASTRO) has defined recurrence following radiation therapy as three consecutive rises in serum PSA following a post-RT PSA nadir. An increasing serum PSA level will prompt radionuclide bone scan. If the bone scan is positive, no further evaluation is necessary. If the bone scan is inconclusive, quantitative bone scan or MRI may be helpful. If the bone scan is negative or inconclusive, TRUS-directed biopsy of the prostate is indicated. Evaluation for lymph node enlargement is done either by CT or MRI. Both imaging tests are relatively accurate for detection of lymph node enlargement.

Post Cryosurgery

Serum PSA should fall to a low level 6 to 8 weeks following cryosurgery and should not rise on successive occasions. Follow-up after cryosurgery should be the same as that after radiotherapy, and it seems reasonable to use similar guidelines to define disease recurrence. It is often difficult to differentiate recurrent tumor from post-cryosurgery changes by means of DRE, TRUS, and MRI.

Post Androgen Deprivation Therapy (ADT)

Androgen deprivation therapy (bilateral orchiectomy, luteinizing hormone-releasing hormone analogue, diethylstilbestrol, bilateral orchiectomy and flutamide, and luteinizing hormone-releasing hormone analogue and flutamide) may have a direct suppressive effect on serum PSA level that is independent of tumor activity. PSA production is under hormonal control, and ADT reduces the cell's ability to produce and secrete PSA. Therefore, serum PSA is not always a reliable marker of disease status in these patients.

Serial serum PSA measurements after ADT were able to predict response to the treatment. Patients whose serum PSA levels remained elevated for more than three months after treatment had a high risk of disease progression within two years. Serial PSA determinations in combination with radionuclide bone scanning are clinically warranted in these patients as follow-up. In patients with an increasing serum PSA level, the investigation can end if the bone scan is conclusive. If the bone scan is negative, further investigation for metastasis may be pursued using TRUS, CT, or MRI.

Summary

All patients treated for prostate cancer are monitored with serial PSA measurements and DRE. A radionuclide bone scan has traditionally been obtained at one year after treatment regardless of PSA level. This tradition is now being challenged, but bone scans are still commonly obtained after ADT.

A rising PSA level usually prompts a bone scan. If it is positive, no other imaging is indicated. An equivocal bone scan may lead to more refined imaging such as a quantitative bone scan or MRI. A negative bone scan requires further investigation such as TRUS-guided biopsy (post prostatectomy and radiation therapy) and lymph node evaluation with CT or MRI (post radiation therapy and ADT). Endorectal coil MRI is evolving and provides useful information regarding local recurrence as well as nodal and bone metastases. Chest X-ray is not necessary because prostatic lung metastasis is only found in late stage disease after other metastatic sites are well established. Bone X-rays are only used to help in identifying degenerative bone changes as a cause for abnormal foci on radionuclide bone scans.

New Techniques

ProstaScint Scan (111 Indium capromab pendetide)

ProstaScint imaging in the detection of soft tissue metastases and local recurrence has been reported to have a sensitivity of 49-94%, a specificity of 65-72%, and an overall accuracy of 63-80%. However, there are still questions remaining regarding the optimal use of ProstaScint imaging. Further, the scans are challenging to interpret and expensive to perform. It has been reported that the likelihood of a positive scan outcome is enhanced when patients with high PSA and high Gleason grade tumor are felt to have a recurrence.

Positron Emission Tomography (PET) with 2-deoxy-2- [F-18] fluoro-D-glucose (FDG)

Many foci of metastatic prostate cancer demonstrate increased FDG accumulation, though this uptake is generally low compared to the other cancers. FDG PET is relatively insensitive in detecting osseous metastases compared to standard bone scintigraphy. Helical CT and FDG PET scanning may be more helpful than ProstaScint imaging in detecting nodal disease in men with high PSA level after radical prostatectomy. PET/CT can provide information about anatomy and metabolism of the recurrent and metastatic disease.

PET with Newer Radiotracers including [11-C]-acetate, [11-C or 18-F]-choline, and [11-C]-methionine

PET with 11C acetate and PET with 11C choline have been reported to detect recurrent disease in patients with high PSA after local treatment. PET with 11C methionine has been reported more sensitive than FDG PET in detecting bone metastases. The efficacy and clinical utility of PET with these new agents are under investigation.

MR Spectroscopic Imaging

MR spectroscopic imaging (MRSI) provides metabolic information from three-dimensional multiple contiguous volumes (voxels) within the prostate gland. Addition of the metabolic information provided by MRSI to the morphologic information provided by endorectal coil MRI can help discriminate regions of residual tumor from other prostatic tissues and necrosis following radiation therapy, cryosurgery, and hormone therapy.

Newer Lymph Nodal MR contrast agent

MRI following IV administration of lymphotropic superparamagnetic nanoparticles has been reported to improve detection of positive lymph nodal metastases from prostate cancer when compared to unenhanced MRI. This MRI contrast agent is investigational and is not commercially available at this time.

Abbreviations

- CT, computed tomography
- FDG, fluorodeoxyglucose
- INV, invasive
- IVP, intravenous pyelogram
- MRI, magnetic resonance imaging
- MRSI, magnetic resonance spectroscopic imaging
- NUC, nuclear medicine
- PET, positron emission tomography
- PSA, prostate specific antigen
- US, ultrasound

CLINICAL ALGORITHM(S)

Algorithms were not developed from criteria guidelines.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on analysis of the current literature and expert panel consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Selection of appropriate radiologic imaging procedures for post treatment follow-up of prostate cancer

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

An American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those exams generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Personal Digital Assistant (PDA) Downloads

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Kawashima A, Choyke PL, Bluth EI, Bush WH Jr, Casalino DD, Francis IR, Jafri SZ, Kronthal AJ, Older RA, Papanicolaou N, Ramchandani P, Rosenfield AT, Sandler CM, Segal AJ, Tempany CM, Resnick MI, Expert Panel on Urologic Imaging. Post-treatment follow-up of prostate cancer. [online publication]. Reston (VA): American College of Radiology (ACR); 2005. 9 p. [50 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 (revised 2005)

GUIDELINE DEVELOPER(S)

American College of Radiology - Medical Specialty Society

SOURCE(S) OF FUNDING

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria®.

GUIDELINE COMMITTEE

Committee on Appropriateness Criteria, Expert Panel on Urologic Imaging

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Amis ES, Bigongiari LR, Bluth EI, Bush WH, Choyke PL, Fritzsche PJ, Holder LE, Newhouse JH, Sandler CM, Segal AJ, Resnick MI, Rutsky EA. Post-treatment follow-up of prostate cancer. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000 Jun; 215(Suppl): 773-8.

The appropriateness criteria are reviewed annually and updated by the panels as needed, depending on introduction of new and highly significant scientific evidence.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [American College of Radiology \(ACR\) Web site](#).

ACR Appropriateness Criteria® Anytime, Anywhere™ (PDA application). Available from the [ACR Web site](#).

Print copies: Available from the American College of Radiology, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- ACR Appropriateness Criteria®. Background and development. Reston (VA): American College of Radiology; 2 p. Electronic copies: Available in Portable Document Format (PDF) from the [American College of Radiology \(ACR\) Web site](#).

PATIENT RESOURCES

None available

NGC STATUS

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